

Time: 6 AM -4 PM

Duration: 10 Hours

General Discussion Topics:

Task:

- 1) To extract a fully expanded aluminum tube from a coil pack whilst only sacrificing the tube itself.
- 2) The designed tool cannot drag the coil fins (minimal damage preferred)
- 3) The tube will be fully expanded without the bullet stuck within
- 4) Aluminum alloy is 3003 and tube is seamless
- 5) Tube may have the enhanced interior
- 6) Tubes may be up to 30' in length

Tool requirements:

- 1) replacement parts must be commercially available
- 2) must work on 5/8", 7/8", and 1" tubes this does not include 3/4"
- 3) Must be able to cut tubes with wall thicknesses of 0.065" to 0.085"
- 4) 0.085" tube bursts are much less common and the tool does not need to be efficient at this size
- 5) Must be reliable and quick enough to extract a tube within 1 business day (preferably much faster)
- 6) Tool must be safe to use/easy to operate
- 7) Expected use is once a month
- 8) Visual appeal is not important
- 9) tool set must fall within \$6,000 budget

Miscellaneous:

- 1) Client has winch system capable of pulling tool both directions
- 2) Our tool needs to have the slot in the end for the winch cable to attach
- 3) Limitation of metal shavings is preferred but not mandatory
- 4) Safety is a large requirement

Deliverables:

- 1) Design and prototype a tube removing tool
- 2) Demonstrate tool on Colmac supplied test coils
- 3) Detailed report discussing reason for choosing final design tool, tool usage and maintenance instructions, and a self-evaluation of this product.